

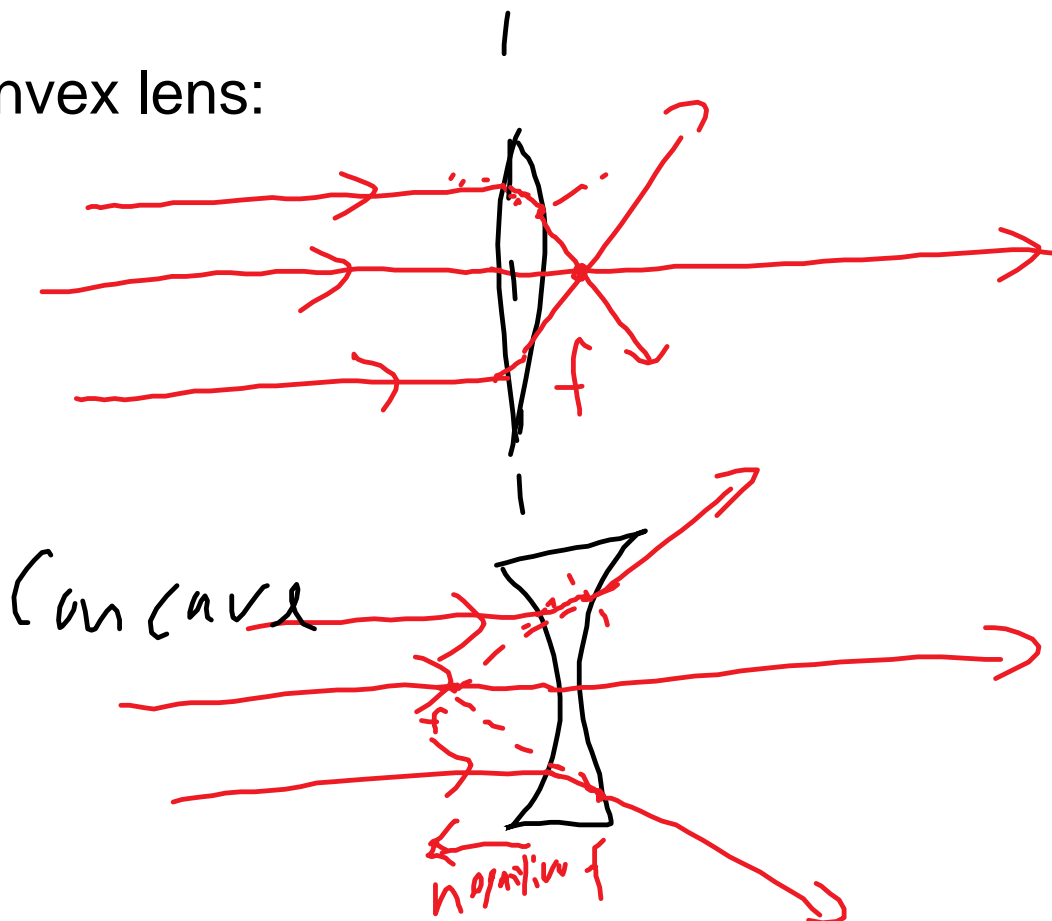
eg. 1. You shine a filament lamp, with a 7.5 cm filament, 6.0 cm from a curved mirror.

Determine the size, location and type of image if

- a) it is a convex mirror, $f = -4.0$ cm (diverging)
- b) it is a concave mirror, $f = 4.0$ cm (converging)
- c) it is a concave mirror, $f = 10.0$ cm (converging)

For lenses:

convex lens:



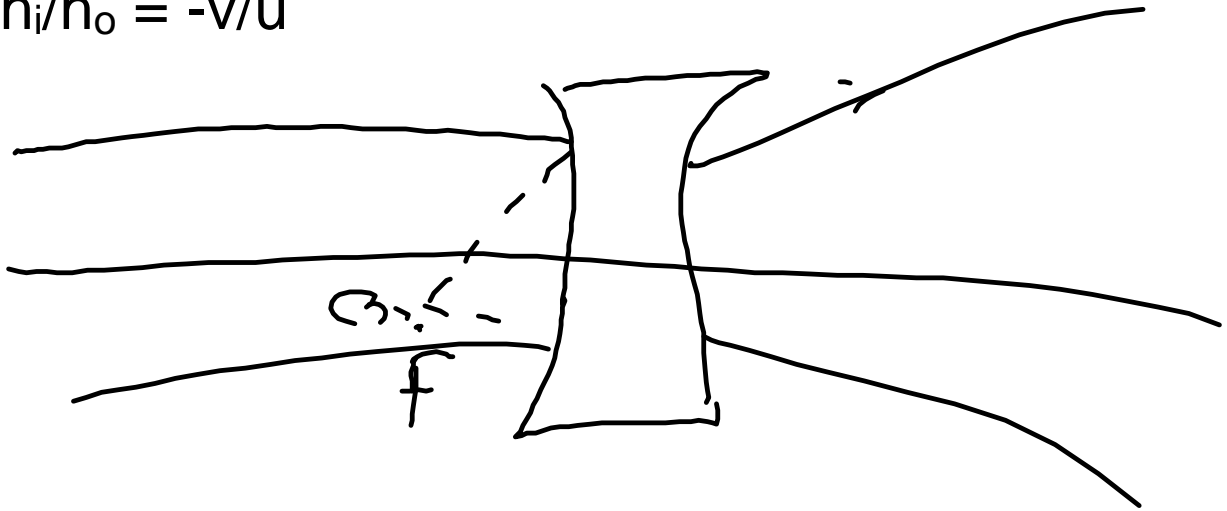
eg. You look at an ant, length 0.60 cm, using a lens. What is the size, location, magnification and type of image if the lens is 8.0 cm away

from the ant and the focal length of the lens is

- a) -4.0 cm
- b) 4.0 cm
- c) 12.0cm

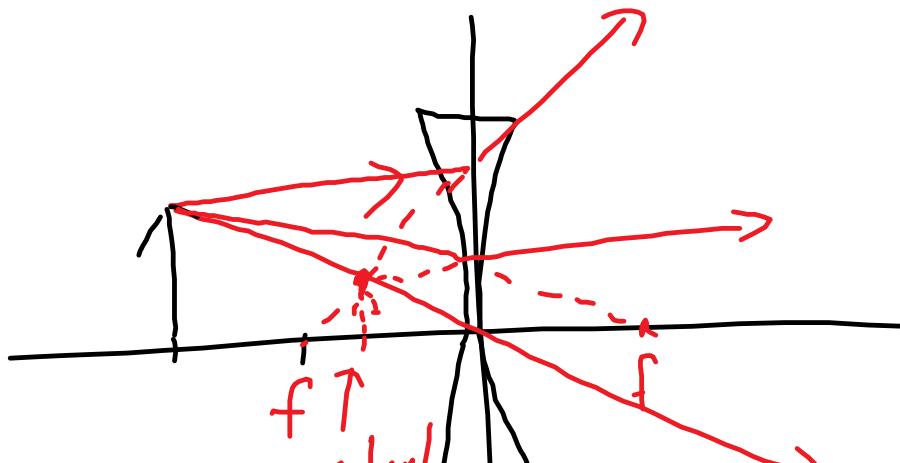
scale diagram, equations $1/f = 1/v + 1/u$

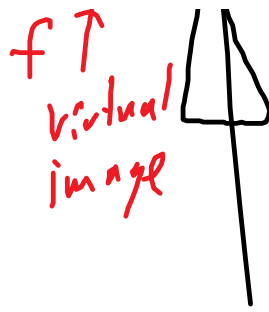
$$m = h_i/h_o = -v/u$$



ray diagram:

1. principle axis
2. mirror/lens
3. focal point
4. object
5. 2 rays from the top of the object
6. draw the image where the rays meet(real)/seem to come from(virtual)





straight through
Vertex

$$\frac{1}{f} = \frac{1}{v} + \frac{1}{u}$$

$$\frac{1}{-4} = \frac{1}{v} + \frac{1}{8}$$

$$v = \frac{-8}{3} = \boxed{-2.7 \text{ cm}}$$

$$m = \frac{v}{u} = \frac{-(-8/3)}{8} = \boxed{0.33}$$

$$h_i = h_o \cdot m = 0.6 \text{ cm} \times \frac{1}{3} = \boxed{0.2 \text{ cm}}$$